

CLAIMS

What is claimed is:

1. A process for transferring information from an information-bearing multilayer
5 structure to a substrate which comprises
 - a) providing an information-bearing multilayer structure comprising
 - i) a carrier layer which may or may not be peelable away from the structure,
 - ii) information desired to be transferred to a substrate, and
 - 10 iii) a layer comprising a solid, radiation-curable resin,
 - b) providing a substrate having an information-receiving surface to which it is
desired to transfer said information,
 - 15 c) contacting said information-receiving surface of said substrate with said layer
comprising said solid, radiation-curable resin under conditions of temperature and
pressure sufficient to transfer said information from said information-bearing
multilayer structure to said information-receiving surface, and
 - 20 d) subjecting the radiation-curable resin to sufficient radiation with or without a
photoinitiator to effect a cure thereof and thereby cause said information to be
bonded to said information-receiving surface.
2. The process of claim 1 wherein said radiation is ultraviolet radiation or electron
25 beam radiation.
3. The process of claim 2 wherein said radiation-curable resin comprises epoxy
group functionality.

4. The process of claim 2 wherein said radiation-curable resin comprises vinyl group functionality.
5. The process of claim 3 wherein the structure comprises a release coat between the carrier and the information to be transferred.
6. The process of claim 3 wherein the structure additionally comprises a clear coat attached to said carrier layer.
7. The process of claim 5 wherein the structure additionally comprises a clear coat between said release coat and said information to be transferred.
8. The process of claim 7 wherein said information to be transferred is either attached to said clear coat or is part of said clear coat.
9. The process of claim 3 wherein the carrier layer is not peelable away from the information to be transferred after step d) is performed.
10. The process of claim 3 wherein the carrier layer is polyester material.
11. The process of claim 10 wherein the polyester material is polyethylene terephthalate.
12. The process of claim 3 wherein the conditions of contacting in step c) to transfer said information include a temperature of between 100°F and 400°F.
13. The process of claim 12 wherein the substrate is selected from the group consisting of polyvinyl chloride, polyesters, and paper products.
14. The process of claim 13 wherein the substrate is currency paper.

15. The process of claim 1 wherein the curing in step d) is effected in the presence of photoinitiator for the curing of said resin employed.

16. The process of claim 1 wherein said solid, radiation-curable resin has a softening point in the range of from 100°F to 400°F.

17. The process of claim 1 wherein the information to be transferred comprises material selected from the group consisting of holographic images, diffractive gratings, high refractive index layers, solid, radiation-curable resin layers, clear coats, adhesive layers, decorative elements, metallic particles, metal surfaces, vacuum deposited metal layers, printed text, colors, lettering, pictures, and scenes.

18. The process of claim 1 wherein said information to be transferred comprises said layer comprising a solid, radiation-curable resin.

19. The process of claim 18 wherein said radiation is ultraviolet radiation or electron beam radiation.

20. The process of claim 18 wherein said radiation-curable resin comprises epoxy group functionality.

21. The process of claim 18 wherein said radiation-curable resin comprises vinyl group functionality.

22. The process of claim 20 wherein the conditions of contacting in step c) to transfer said information include a temperature of between 100° and 400° F.

23. The process of claim 20 which includes the additional step of providing, prior to performing the curing step d), textual material on said solid, radiation-curable resin layer at a location where the textual material will contact said substrate when step c) is performed.

24. The process of claim 20 wherein the carrier layer is polyester material.

25. The process of claim 20 wherein the polyester material is polyethylene terephthalate.

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26. The process of claim 20 wherein the carrier is peelable away from the solid, radiation-curable resin.

27. A hot stamping foil which comprises

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a) a carrier layer which may or may not be peelable away from said composite, attached directly, or indirectly through one or more layers, to

b) a layer comprising a solid, radiation-curable resin,

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wherein said hot stamping foil comprises information desired to be transferred to a substrate.

28. The hot stamping foil of claim 27 wherein said resin is curable by ultraviolet radiation or electron beam radiation.

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29. The hot stamping foil of claim 28 wherein said radiation-curable resin comprises epoxy group functionality.

30. The hot stamping foil of claim 28 wherein said radiation-curable resin comprises vinyl group functionality.

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31. The hot stamping foil of claim 29 wherein the hot stamping foil comprises a release coat between the carrier and the information to be transferred.

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32. The hot stamping foil of claim 31 wherein the hot stamping foil additionally comprises a clear coat attached to said carrier layer.

33. The hot stamping foil of claim 31 wherein the hot stamping foil additionally
5 comprises a clear coat between said release coat and said information to be transferred.

34. The hot stamping foil of claim 33 wherein said information to be transferred is either attached to said clear coat or is part of said clear coat.

10 35. The hot stamping foil of claim 29 wherein the carrier layer is not peelable away from the information to be transferred after said solid, radiation-curable resin has been cured.

36. The hot stamping foil of claim 29 wherein the carrier layer is polyester material.
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37. The hot stamping foil of claim 36 wherein the polyester material is polyethylene terephthalate.

38. The hot stamping foil of claim 27 wherein the information to be transferred
20 comprises material selected from the group consisting of holographic images, diffractive gratings, high refractive index layers, solid, radiation-curable resins, clear coats, adhesive layers, decorative elements, metallic particles, metal surfaces, vacuum deposited metal layers, printed text, colors, lettering, pictures, and scenes.

25 39. A composite structure comprising textual material bonded to a substrate, said composite comprising

- a) a carrier layer, which may or may not be peelable away from said composite, attached directly, or indirectly through one or more layers, to
- 30 b) a layer comprising a solid, radiation-cured resin bonded to

c) a substrate at an interface between said radiation-cured resin and said substrate wherein said resin at said interface carries reverse printed textual material visible through the radiation-cured resin and said carrier, if present.

5 40. The composite of claim 39 wherein said cured resin is derived from ultraviolet radiation or electron beam radiation.

41. The composite of claim 40 wherein said resin is derived from a resin comprising epoxy group functionality.

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42. The composite of claim 40 wherein said resin is derived from a resin comprising vinyl group functionality.

15 43. The composite of claim 41 wherein the composite additionally comprises a release coat between the carrier and the radiation-cured resin.

44. The composite of claim 43 wherein the composite additionally comprises a clear coat attached to said carrier layer.

20 45. The composite of claim 43 wherein the composite additionally comprises a clear coat between said release coat and said radiation-cured resin.

46. The composite of claim 45 wherein said radiation-cured resin to be transferred is either attached to said clear coat or is part of said clear coat.

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47. The composite of claim 46 wherein the carrier layer is peelable away from said composite.

48. The composite of claim 47 wherein the carrier layer is polyester material.

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49. The composite of claim 48 wherein the polyester material is polyethylene terephthalate.
50. The composite of claim 39 wherein said resin is derived from a solid, radiation-curable resin having a softening point of between 100°F and 400°F.
51. The composite of claim 50 wherein the substrate is selected from the group consisting of polyvinyl chloride, polyesters, and paper products.
52. The composite of claim 51 wherein the substrate is currency paper.
53. The composite of claim 39 wherein the information comprises a material selected from the group consisting of holographic images, diffractive gratings, high refractive index layers, solid, radiation-curable resin, clear coats, adhesive coats, decorative elements, metallic particles, metal surfaces, vacuum deposited metal layers, printed text, colors, lettering, pictures, and scenes.